

# ISP Injury Data Update

A Publication of the Injury Surveillance Program (ISP)

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## **Injury Surveillance Program:**

The Injury Surveillance Program (ISP) of the Massachusetts Department of Public Health was created in 1998 to combine ongoing injury surveillance systems, specially focused projects, and surveillance activities into one comprehensive program.

ISP's mission is to acquire and analyze existing data sets and to create supplemental systems to better track and understand the incidence of, and risk factors for, injuries to Massachusetts' residents. ISP provides user-friendly injury data products and services to injury control advocates to help inform decisions regarding the development and evaluation of prevention initiatives.

This update summarizes 1998 injury deaths (Table 2) and hospitalizations (Table 3), and 1999 injuries treated and released from hospital emergency departments (Table 4). The update includes only Massachusetts' residents injured or treated in Massachusetts. Table 1 provides a quick reference summary and includes the injury to death ratio—for every 1 injury-related death, 18 injury-related cases are admitted to a hospital and 310 are treated and released from an emergency department.

<b>Table 1. Annual Injury to Massachusetts Residents</b>				
	<i>Deaths</i>	<i>Admits</i>	<i>ED Visits</i>	<i>Total</i>
Number	2,345	41,023	726,239	<b>769,607</b>
Rate	37.3	652.1	11543.6	<b>12232.9</b>
Ratio	1	18	310	--

\*Rate is per 100,000 residents.

Examination of Massachusetts data shows that the number and rate of injury causes rank differently depending on the data set analyzed. For example, poisoning was the leading cause of injury death in 1998 accounting for 24% of all injury-related fatalities. Fall-related injuries, however, ranked highest as the cause of injury-related hospitalizations and emergency department discharges (approximately 53% and 25% of the total, respectively).

For the purposes of this bulletin, injury deaths are defined as any case having an ICD9 E-Code of 800 to 999 as the underlying cause of death (see exclusions below). Hospitalizations and ED visits are defined as any case having an ICD9-CM Nature of Injury code of 800-999 in *any* ICD9 field *and* for which an External Cause of Injury Code of E800 to E999 is assigned to the primary E-Code field (see exclusions below).

Adverse and late effects are excluded from all analyses presented here. Detailed method notes are provided with each corresponding table. A bulletin on adverse effects is being developed and will be published by ISP at a later time.

## **Surveillance Systems & Special Projects:**

### *Emergency Department Injury Surveillance System (EDISS)*

EDISS, known as EDSCIP in its pilot phase, is a stratified random sample of 13 Massachusetts hospital emergency departments (EDs) that submit data on all injuries treated in the emergency department. Previously unavailable, these data serve to augment hospitalization and death data by providing statewide estimates of injuries treated and released from EDs.

### *Weapon-Related Injury Surveillance System (WRISS)*

WRISS—an emergency department-based system—captures data on persons treated for gunshot wounds and violence-related sharp instrument wounds. All Massachusetts acute care hospital emergency departments participate in WRISS.

### *Coordination of Resources for Effective Surveillance (CORE)*

This project will allow ISP to develop a long term plan to maintain and augment injury surveillance activities, develop a standard set of analyses based on eleven core data sets, and enhance the capacity for surveillance of specific injuries (e.g., traumatic brain injury).

### *Protecting Lives Utilizing Surveillance (PLUS)*

This capacity-building grant will improve integration and infrastructure within the Department and enhance a broad range of injury surveillance and prevention activities.

### *Occupational Injury Surveillance Project*

This collaborative project between ISP and the Department's Occupational Health Surveillance Program will evaluate the quality of an electronic ED surveillance system (EDISS) for occupational injury surveillance.

## **Publications & Data:**

Publications (e.g., articles & bulletins) are available from the office, and ISP can provide customized data summaries to meet your specific needs. Turn-around time for extracting and compiling data is generally two to four weeks. A comprehensive injury data book detailing specific injuries is currently in progress and will be published in early fall. For more information, call 617-624-5664.

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Special thanks to all of the dedicated hospital personnel in Health Information Services, Medical Records, and Emergency Departments who contribute at so many levels to the success of these projects.

Additional support provided by *The Bureau of Family and Community Health*

**Table 2. Numbers and Rates of Injury Deaths to  
Massachusetts Residents, 1998**

*(Total Number=2,345)*

	Intent of Injury										Totals	
	Unintentional		Self-Inflicted		Assaultive		Undetermined		Other <sup>5</sup>			
Mechanism/Cause	Number	Rate/ 100,000	Number	Rate/ 100,000	Number	Rate/ 100,000	Number	Rate/ 100,000	Number	Rate/ 100,000	Number	Rate/ 100,000
Cut/pierce	1	0.0	10	0.2	28	0.4	0	0.0	0	0.0	39	0.6
Drowning/submersion	61	1.0	8	0.1	0	0.0	21	0.3	--	--	90	1.4
Fall	192	3.1	23	0.4	0	0.0	2	0.0	--	--	217	3.4
Fire & burn:												
Fire/flame	51	0.8	3	0.0	4	0.1	0	0.0	--	--	58	0.9
Hot object/substance	0	0.0	1	0.0	0	0.0	0	0.0	--	--	1	0.0
SUB total	51	0.8	4	0.1	4	0.1	0	0.0	--	--	59	0.9
Gun:												
Firearm	2	0.0	153	2.4	63	1.0	1	0.0	0	0.0	219	3.5
Non-powder gun (e.g., BB)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
SUB total	2	0.0	153	2.4	63	1.0	1	0.0	0	0.0	219	3.5
Machinery	6	0.1	--	--	--	--	--	--	--	--	6	0.1
Motor vehicle traffic:												
Motorcyclist	26	0.4	--	--	--	--	--	--	--	--	26	0.4
Occupant	224	3.6	--	--	--	--	--	--	--	--	224	3.6
Pedal cyclist	3	0.0	--	--	--	--	--	--	--	--	3	0.0
Pedestrian	97	1.5	--	--	--	--	--	--	--	--	97	1.5
Unspecified	121	1.9	--	--	--	--	--	--	--	--	121	1.9
Other	2	0.0	2	0.0	0	0.0	0	0.0	--	--	4	0.1
SUB total	473	7.5	2	0.0	0	0.0	0	0.0	--	--	475	7.6
Natural/environmental:												
Dog bites	0	0.0	--	--	--	--	--	--	--	--	0	0.0
Other bites/stings	2	0.0	--	--	--	--	--	--	--	--	2	0.0
All other natural causes	11	0.2	0	0.0	--	--	0	0.0	--	--	11	0.2
SUB total	13	0.2	0	0.0	--	--	0	0.0	--	--	13	0.2
Overexertion	0	0.0	--	--	--	--	--	--	--	--	0	0.0
Pedal cyclist-non motor vehicle	1	0.0	--	--	--	--	--	--	--	--	1	0.0
Pedestrian-non motor vehicle	10	0.2	--	--	--	--	--	--	--	--	10	0.2
Poisoning	35	0.6	118	1.9	0	0.0	418	6.6	0	0.0	571	9.1
Struck by/against	6	0.1	--	--	9	0.1	--	--	0	0.0	15	0.2
Suffocation/hanging	108	1.7	173	2.7	3	0.0	1	0.0	--	--	285	4.5
Transport, other	22	0.3	0	0.0	--	--	0	0.0	--	--	22	0.3
Other specified, classifiable:												
Caught by/between	0	0.0	--	--	--	--	0	0.0	0	0.0	0	0.0
All other	12	0.2	4	0.1	3	0.0	1	0.0	0	0.0	20	0.3
SUB total	12	0.2	4	0.1	3	0.0	1	0.0	0	0.0	20	0.3
Other specified, not classifiable	1	0.0	6	0.1	5	0.1	4	0.1	0	0.0	16	0.3
Unspecified	267	4.2	2	0.0	8	0.1	10	0.2	0	0.0	287	4.6
TOTAL	1261	20.0	503	8.0	123	2.0	458	7.3	0	0.0	2345	37.3

**Source:** Registry of Vital Records and Statistics, Mass. Dept. of Public Health.

1) For the purposes of death data analyses, injury is defined as any death with an Underlying Cause ranging from 800-999 [(excluding Surgical & Medical Misadventures (870-879), Adverse Effects in Therapeutic Use (930.0-949.9), and Late Effects (929.0-929.9, 959, 969, 989, 999)].

2) Data are based on Calendar Year (Jan 1, 1998 – Dec 31, 1998).

3) Only Massachusetts residents who died within Massachusetts are included in these analyses.

4) Population data used to calculate rates are based on 1998 estimates developed by the Massachusetts Institute for Social and Economic Research. All rates are per 100,000 residents.

5) Presentation format is based on CDC Matrix for Reporting Injury Mortality & Morbidity. A double hyphen indicates that intentionality is not provided for this category. 'Other Intent' includes injuries due to legal intervention and operations of war.

6) All data were extracted and compiled by the Injury Surveillance Program, MDPH, 2001.

**Table 3. Numbers and Rates of Injury-Related Hospitalizations to Massachusetts Residents, 1998 (FY)<sup>2</sup>**

(Total Number=41,023)

	Intent of Injury										Totals	
	Unintentional		Self-Inflicted		Assaultive		Undetermined		Other <sup>5</sup>			
Mechanism/Cause	Number	Rate/ 100,000	Number	Rate/ 100,000	Number	Rate/ 100,000	Number	Rate/ 100,000	Number	Rate/ 100,000	Number	Rate/ 100,000
Cut/pierce	625	9.9	468	7.4	306	4.9	28	0.4	1	0.0	1428	22.7
Drowning/submersion	33	0.5	2	0.0	0	0.0	2	0.0	--	--	37	0.6
Fall	22580	358.9	29	0.5	5	0.1	19	0.3	--	--	22633	359.8
Fire & burn:												
Fire/flame	178	2.8	18	0.3	1	0.0	4	0.1	--	--	201	3.2
Hot object/substance	306	4.9	5	0.1	3	0.0	0	0.0	--	--	314	5.0
SUB total	484	7.7	23	0.4	4	0.1	4	0.1	--	--	515	8.2
Gun:												
Firearm	60	1.0	12	0.2	96	1.5	20	0.3	0	0.0	188	3.0
Non-powder gun (e.g., BB)	3	0.0	2	0.0	1	0.0	0	0.0	0	0.0	6	0.1
SUB total	63	1.0	14	0.2	97	1.5	20	0.3	0	0.0	194	3.1
Machinery	237	3.8	--	--	--	--	--	--	--	--	237	3.8
Motor vehicle traffic:												
Motorcyclist	400	6.4	--	--	--	--	--	--	--	--	400	6.4
Occupant	2941	46.7	--	--	--	--	--	--	--	--	2941	46.7
Pedal cyclist	166	2.6	--	--	--	--	--	--	--	--	166	2.6
Pedestrian	669	10.6	--	--	--	--	--	--	--	--	669	10.6
Unspecified	160	2.5	--	--	--	--	--	--	--	--	160	2.5
Other	37	0.6	--	--	--	--	--	--	--	--	37	0.6
SUB total	4373	69.5	5	0.1	1	0.0	1	0.0	--	--	4380	69.6
Natural/environmental:												
Dog bites	157	2.5	--	--	--	--	--	--	--	--	157	2.5
Other bites/stings	292	4.6	--	--	--	--	--	--	--	--	292	4.6
All other natural causes	134	2.1	3	0.0	--	--	1	0.0	--	--	138	2.2
SUB total	583	9.3	3	0.0	--	--	1	0.0	--	--	587	9.3
Overexertion	1040	16.5	--	--	--	--	--	--	--	--	1040	16.5
Pedal cyclist-non motor vehicle	353	5.6	--	--	--	--	--	--	--	--	353	5.6
Pedestrian-non motor vehicle	52	0.8	--	--	--	--	--	--	--	--	52	0.8
Poisoning	1269	20.2	2635	41.9	2	0.0	304	4.8	0	0.0	4210	66.9
Struck by/against	1052	16.7	--	--	519	8.2	--	--	4	0.1	1575	25.0
Suffocation/hanging	245	3.9	21	0.3	2	0.0	2	0.0	--	--	270	4.3
Transport, other	428	6.8	0	0.0	--	--	--	--	0	0.0	428	6.8
Other specified, classifiable:												
Caught by/between	101	1.6	--	--	--	--	--	--	--	--	101	1.6
All other	495	7.9	5	0.1	105	1.7	1	0.0	1	0.0	607	9.6
SUB total	596	9.5	5	0.1	105	1.7	1	0.0	1	0.0	708	11.3
Other specified, not classifiable	253	4.0	36	0.6	98	1.6	12	0.2	0	0.0	399	6.3
Unspecified	1804	28.7	26	0.4	120	1.9	26	0.4	1	0.0	1977	31.4
TOTAL	36070	573.3	3267	51.9	1259	20.0	420	6.7	7	0.1	41023	652.1

**Source:** Massachusetts Hospital Discharge Database, Division of Health Care Finance and Policy.

1) For the purposes of hospital data analyses, an injury case is defined as: (a) any case having an ICD9-CM Nature of Injury Code of 800-999 in any of the ICD9 diagnosis fields [excluding Certain Adverse Effects (995.0-995.4, 995.6, 995.86, 995.89), Complications of Surgical & Medical Care (996-999), and Late Effects (905-909)], and having (b) an E-Code (External Cause of Injury Code) ranging from E800-E999 assigned to the primary E-Code field [excluding Surgical & Medical Misadventures (E870-E879), Adverse Effects in Therapeutic Use (E930.0-E949.9), and Late Effects (E929.0-E929.9, E959, E969, E989, E999)].

2) Data are based on Fiscal Year (Oct 1, 1997 – Sep 30, 1998).

3) Only Massachusetts residents admitted to a Massachusetts hospital are included in these analyses.

4) Population data used to calculate rates are based on 1998 estimates developed by the Massachusetts Institute for Social and Economic Research. All rates are per 100,000 residents.

5) Presentation format is based on CDC Matrix for Reporting Injury Mortality & Morbidity. A double hyphen indicates that intentionality is not provided for this category. 'Other Intent' includes injuries due to legal intervention and operations of war.

6) All data were extracted and compiled by the Injury Surveillance Program, MDPH, 2001.

**Table 4. Estimated Numbers and Rates of Injuries to Massachusetts Residents Treated & Released from Emergency Departments, 1999 (FY)<sup>2</sup>**

*(Total Number=726,239)*

	Intent of Injury										Totals	
	Unintentional		Self-Inflicted		Assaultive		Undetermined		Other <sup>5</sup>			
Mechanism/Cause	Est. Number	Rate/ 100,000	Est. Number	Rate/ 100,000	Est. Number	Rate/ 100,000	Est. Number	Rate/ 100,000	Est. Number	Rate/ 100,000	Est. Number	Rate/ 100,000
Cut/pierce	87129	1384.9	1656	26.3	986	15.7	98	1.6	0	0.0	89869	1428.5
Drowning/submersion	133	2.1	6	0.1	0	0.0	6	0.1	--	--	145	2.3
Fall	180847	2874.6	46	0.7	17	0.3	58	0.9	--	--	180968	2876.5
Fire & burn:												
Fire/flame	1846	29.3	29	0.5	29	0.5	23	0.4	--	--	1927	30.6
Hot object/substance	10494	166.8	0	0.0	23	0.4	6	0.1	--	--	10523	167.3
SUB total	12340	196.1	29	0.5	52	0.8	29	0.5	--	--	12450	197.9
Gun:												
Firearm	104	1.7	17	0.3	58	0.9	40	0.6	12	0.2	231	3.7
Non-powder gun (e.g., BB)	92	1.5	0	0.0	12	0.2	17	0.3	0	0.0	121	1.9
SUB total	196	3.1	17	0.3	70	1.1	57	0.9	12	0.2	352	5.6
Machinery	4725	75.1	--	--	--	--	--	--	--	--	4725	75.1
Motor vehicle traffic:												
Motorcyclist	3017	48.0	--	--	--	--	--	--	--	--	3017	48.0
Occupant	77812	1236.8	--	--	--	--	--	--	--	--	77812	1236.8
Pedal cyclist	2365	37.6	--	--	--	--	--	--	--	--	2365	37.6
Pedestrian	1252	19.9	--	--	--	--	--	--	--	--	1252	19.9
Unspecified	4286	68.1	--	--	--	--	--	--	--	--	4286	68.1
Other	456	7.2	--	--	--	--	--	--	--	--	456	7.2
SUB total	89188	1417.6	0	0.0	23	0.4	29	0.5	--	--	89240	1418.5
Natural/environmental:												
Dog bites	9975	158.6	--	--	--	--	--	--	--	--	9975	158.6
Other bites/stings	17780	282.6	--	--	--	--	--	--	--	--	17780	282.6
All other natural causes	2354	37.4	6	0.1	--	--	17	0.3	--	--	2377	37.8
SUB total	30109	478.6	6	0.1	--	--	17	0.3	--	--	30132	478.9
Overexertion	85000	1351.1	--	--	--	--	--	--	--	--	85000	1351.1
Pedal cyclist-non motor vehicle	11676	185.6	--	--	--	--	--	--	--	--	11676	185.6
Pedestrian-non motor vehicle	369	5.9	--	--	--	--	--	--	--	--	369	5.9
Poisoning	6859	109.0	5048	80.2	12	0.2	1292	20.5	0	0.0	13211	210.0
Struck by/against	104604	1662.7	--	--	11844	188.3	--	--	237	3.8	116685	1854.7
Suffocation/hanging	785	12.5	87	1.4	46	0.7	12	0.2	--	--	930	14.8
Transport, other	4546	72.3	--	--	--	--	--	--	--	--	4546	72.3
Other specified, classifiable:												
Caught by/between	15778	250.8	--	--	--	--	--	--	--	--	15778	250.8
All other	20255	322.0	12	0.2	2031	32.3	0	0.0	0	0.0	22298	354.4
SUB total	36033	572.7	12	0.2	2031	32.3	0	0.0	0	0.0	38076	605.2
Other specified, not classifiable	6167	98.0	542	8.6	4875	77.5	46	0.7	6	0.1	11636	185.0
Unspecified	34620	550.3	35	0.6	1402	22.3	104	1.7	69	1.1	36230	575.9
TOTAL	695326	11052.2	7484	119.0	21358	339.5	1748	27.8	324	5.1	726240	11543.6

**Source:** Emergency Department Injury Surveillance System. Mass. Dept. of Public Health.

1) For the purposes of emergency department data analyses, an injury case is defined as: (a) any case having an ICD9-CM Nature of Injury Code of 800-999 in any of the ICD9 diagnosis fields [excluding Certain Adverse Effects (995.0-995.4, 995.6, 995.86, 995.89), Complications of Surgical & Medical Care (996-999), and Late Effects (905-909)], and having (b) an E-Code (External Cause of Injury Code) ranging from E800-E999 assigned to the primary E-Code field [excluding Surgical & Medical Misadventures (E870-E879), Adverse Effects in Therapeutic Use (E930.0-E949.9), and Late Effects (E929.0-E929.9, E959, E969, E989, E999)].

2) Data are based on Fiscal Year (Oct 1, 1998 – Sep 30, 1999).

3) The above statewide estimates are based on a stratified random sample of 12 hospital emergency departments that participate in the Emergency Department Injury Surveillance System. Only Massachusetts residents treated and released are included in these analyses.

4) Population data used to calculate rates are based on 1998 estimates developed by the Massachusetts Institute for Social and Economic Research. All rates are per 100,000 residents.

5) Presentation format is based on CDC Matrix for Reporting Injury Mortality & Morbidity A double hyphen indicates that intentionality is not provided for this category. 'Other Intent' includes injuries due to legal intervention and operations of war.

6) All data were extracted and compiled by the Injury Surveillance Program, MDPH, 2001.